2025 First Flush Water Quality Results

SAN MATEO RESOURCE CONSERVATION DISTRICT

MONTEREY BAY NATIONAL MARINE SANCTUARY

Clifton Herrmann
RCD Water Quality Specialist


Wildlife
We improve the chances of survival for species of plants and animals at risk of extinction by restoring their habitats.
Water
We help ensure clean and reliable water for the farms, fish, and people who share this precious resource.
Climate
We work to reduce emissions and remove greenhouse gases from the atmosphere as well as help people prepare for extreme weather.
Agriculture
We serve farmers and ranchers to help ensure viable, environmentally friendly local agriculture.
Forest Health and Fire Resiliency
We work with communities to reduce the risk of catastrophic fire, improve forest health, and heal the land after fires occur.

What is First Flush?

Concept

- First big rain event of the wet season
- Contaminants that were on land are washed into the ocean

Program

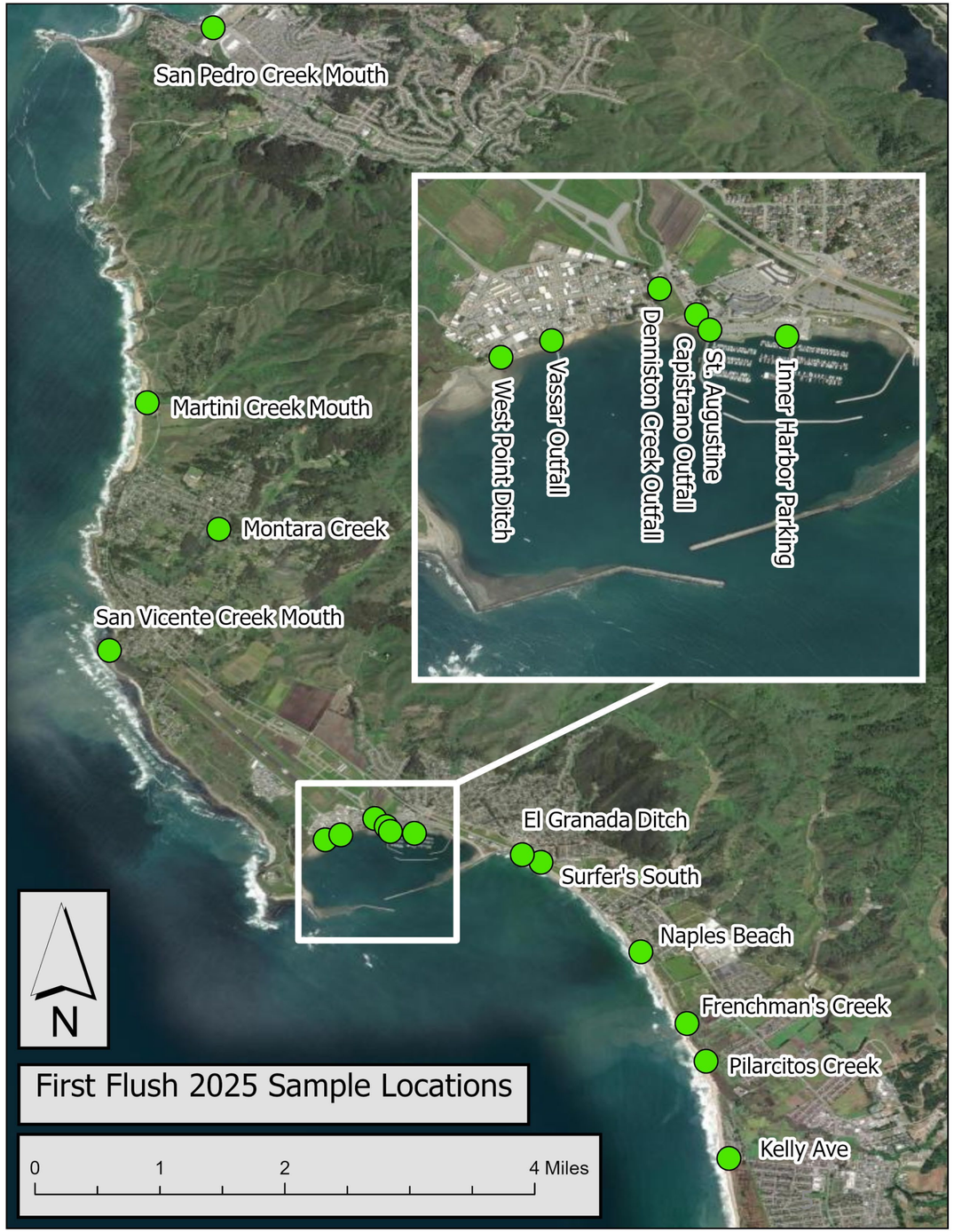
- Volunteer WQ monitoring
- Occurs once annually
- “Worst case” scenario for WQ

Why sample First Flush?

- Helps identify what pollutants are of concern (or not) and where
- Helps us make informed decisions

What did we test for?

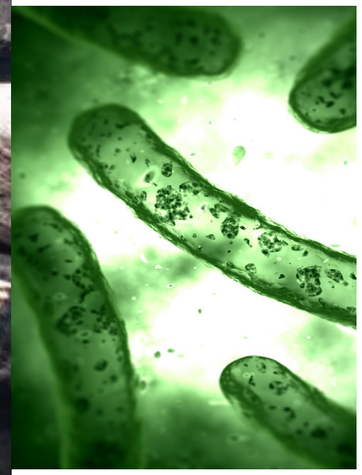
- Fecal Indicator Bacteria (FIB)
- Nutrients (Nitrate and Orthophosphate)
- Metals (Copper, Zinc, and Lead)
- Total Suspended Solids



Why We Monitor Water Quality

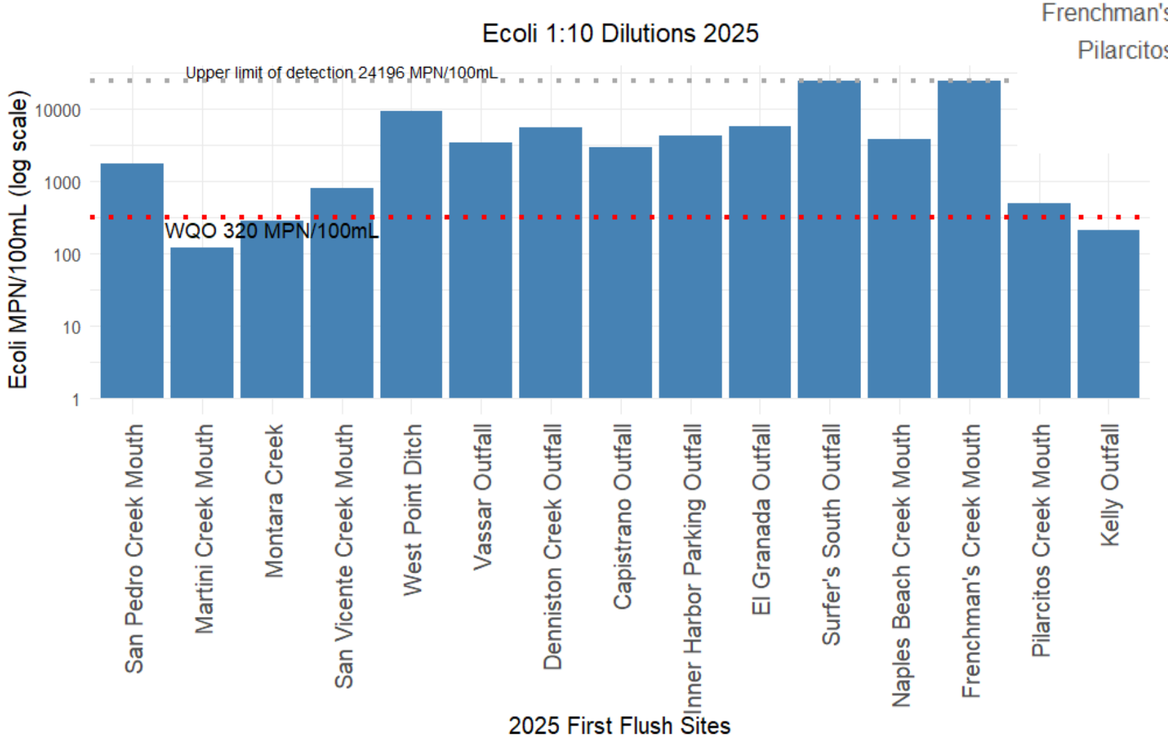
- Some pollutants affect human health
- Some pollutants affect ecological health
- Some pollutants affect both
- General physical conditions provide important context

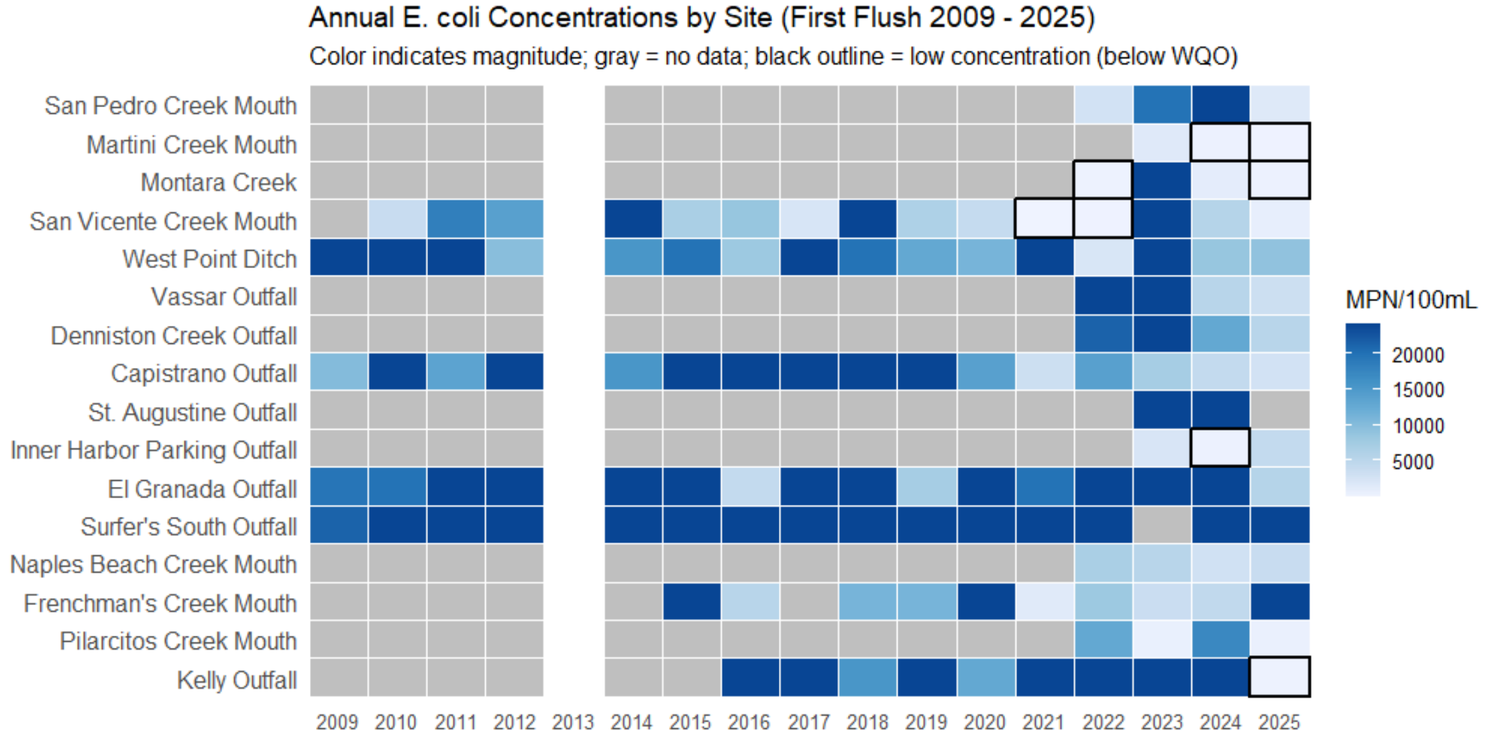
Pollutant	Potential Sources	Effects
Fecal Indicator Bacteria (*E. coli*, *Enterococcus*)	Feces of warm-blooded animals (humans, pets, wildlife)	None directly. Indicates potential presence of pathogens that could make people sick.



FIB Results – *E. coli*

2025

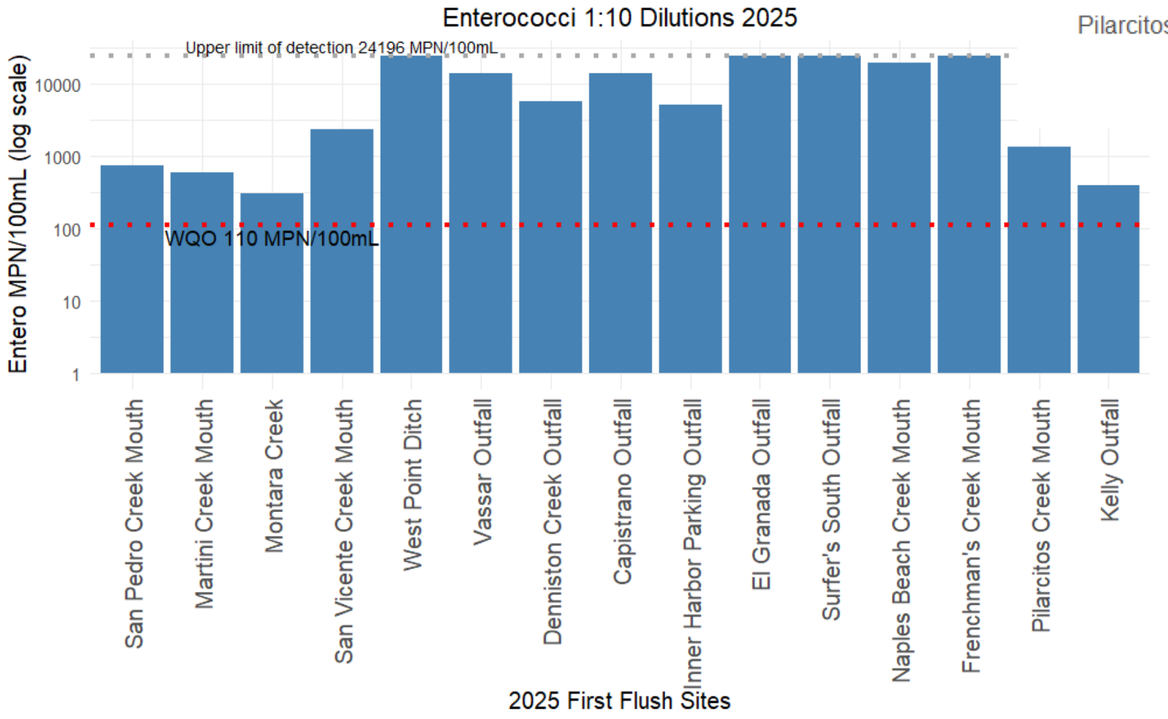


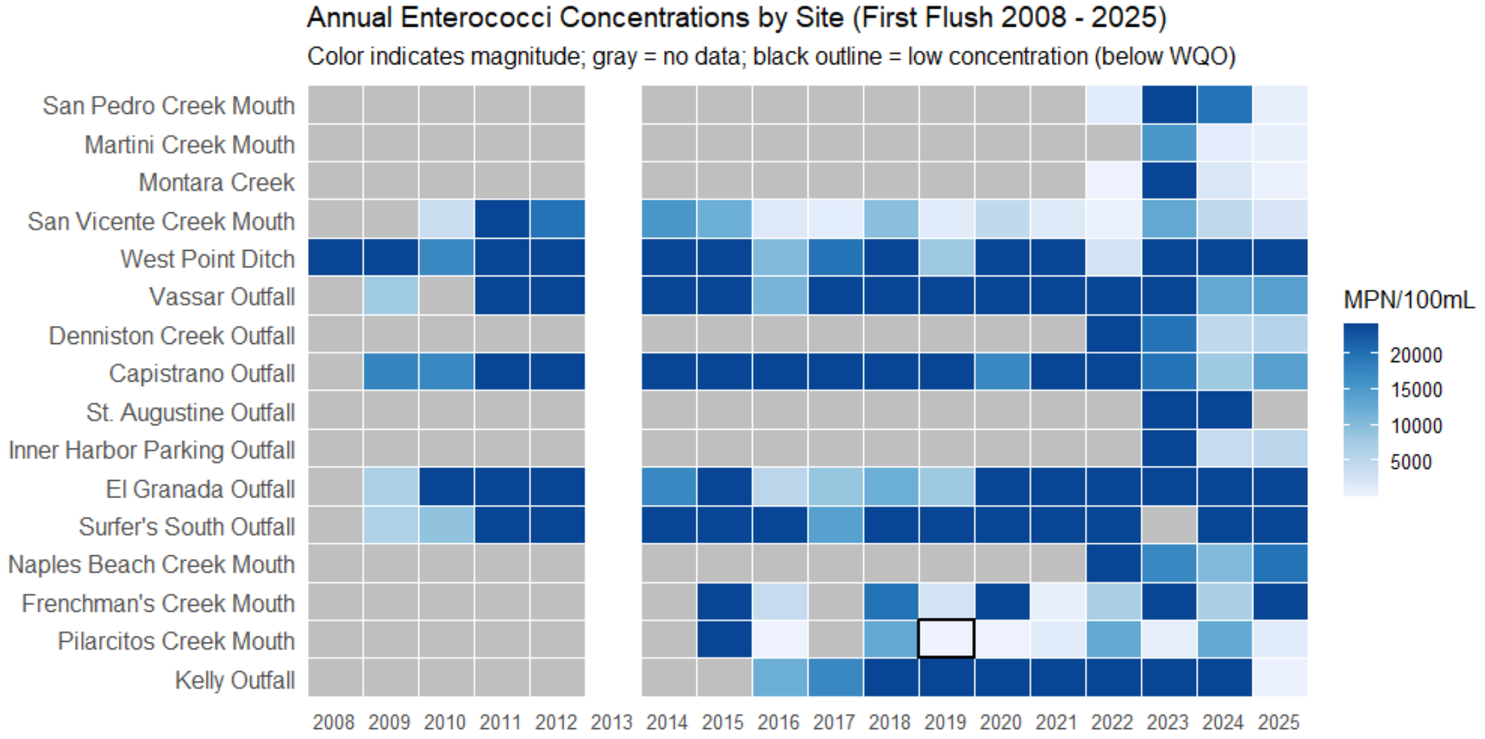


2009 – 2025

FIB Results – enterococci

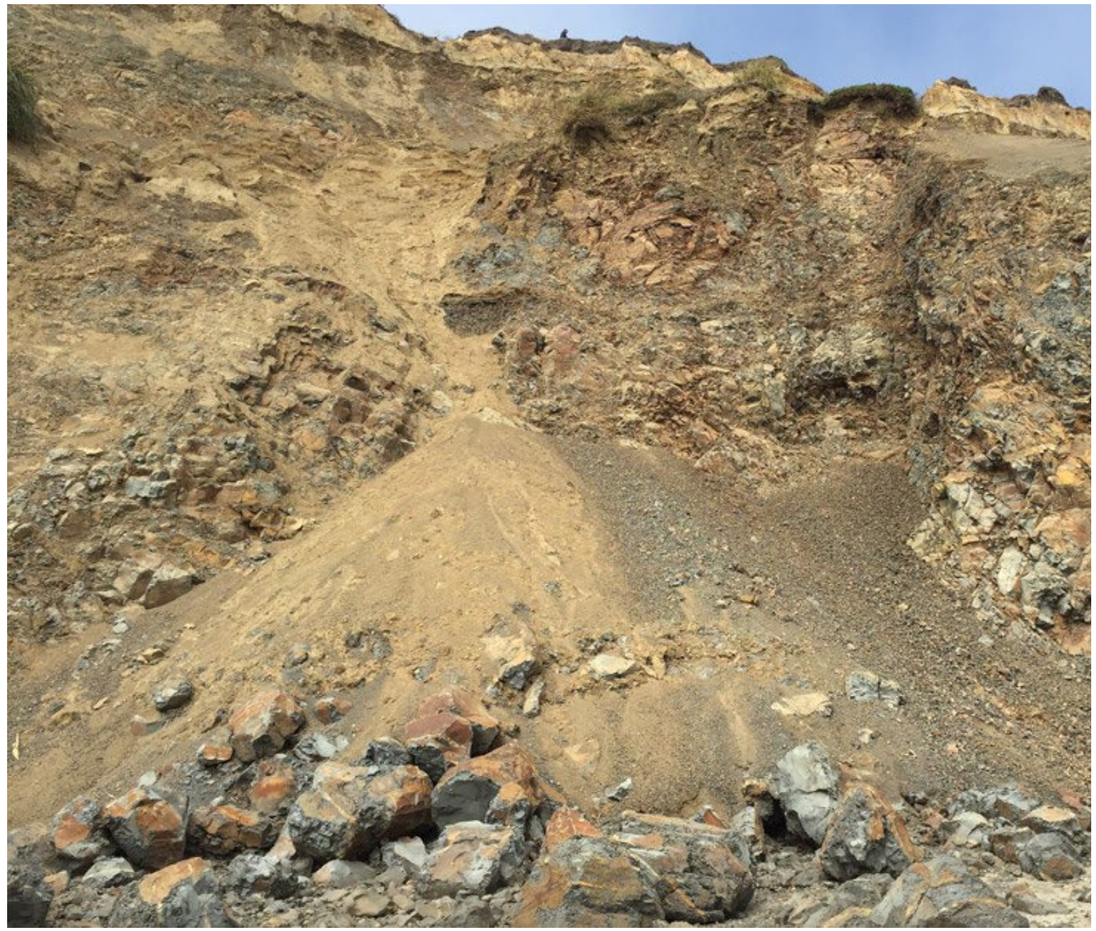
2025

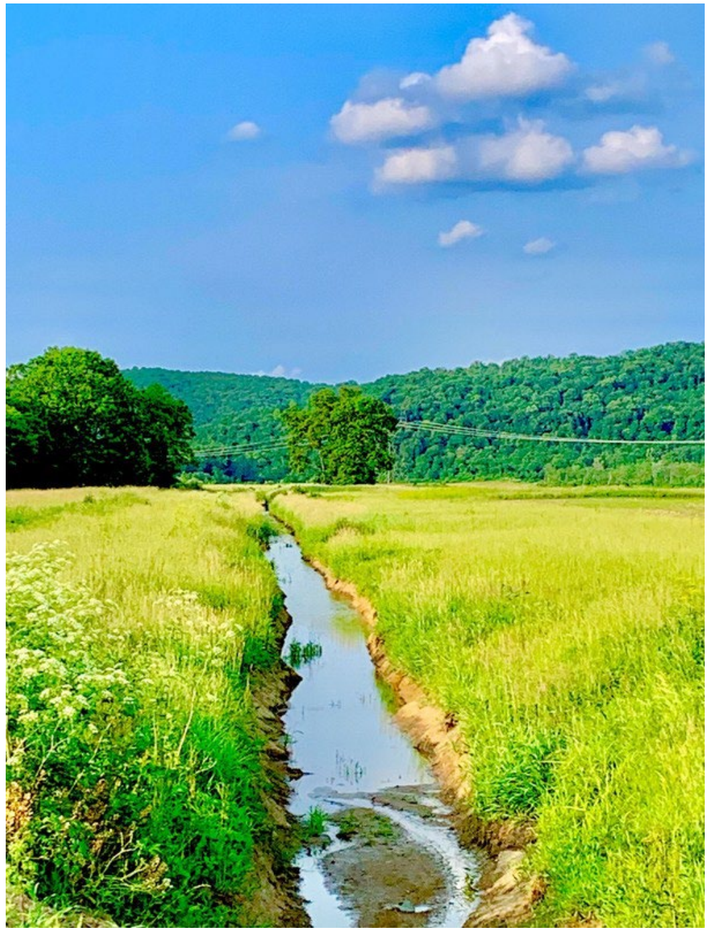




2008 – 2025

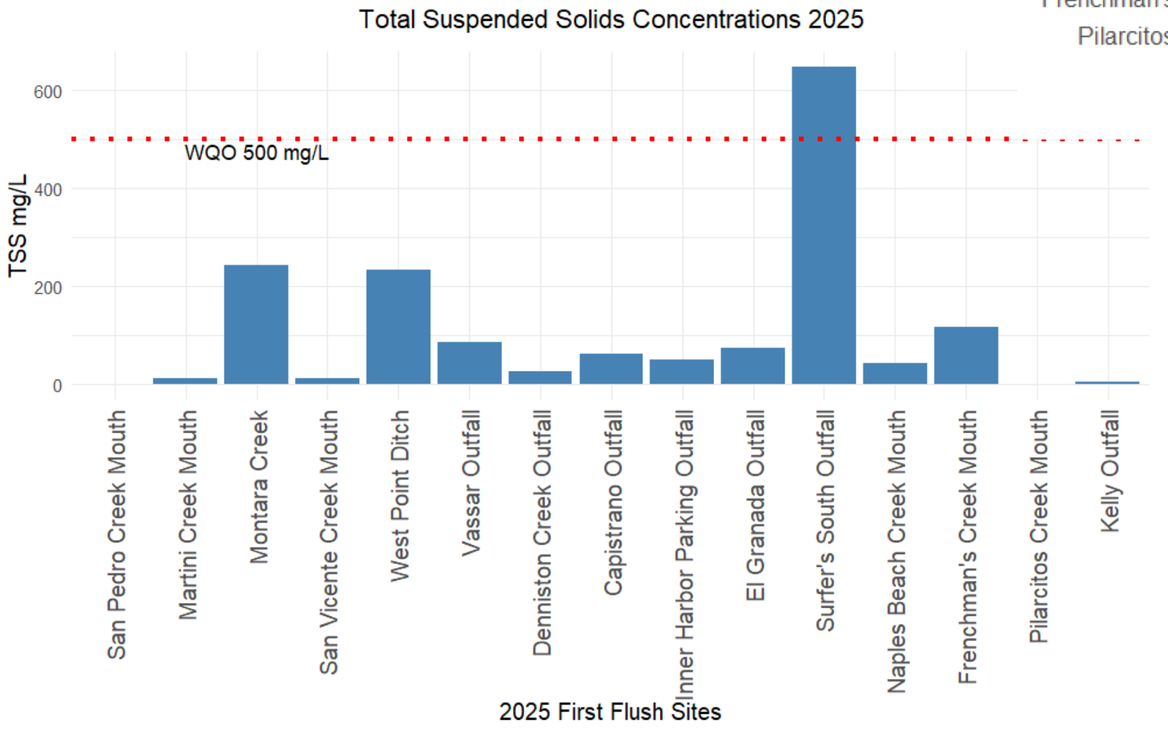
Pollutant	Potential Sources	Effects
Total suspended solids	Construction, erosion, agricultural runoff, fires	Water column visibility, aquatic organism respiration

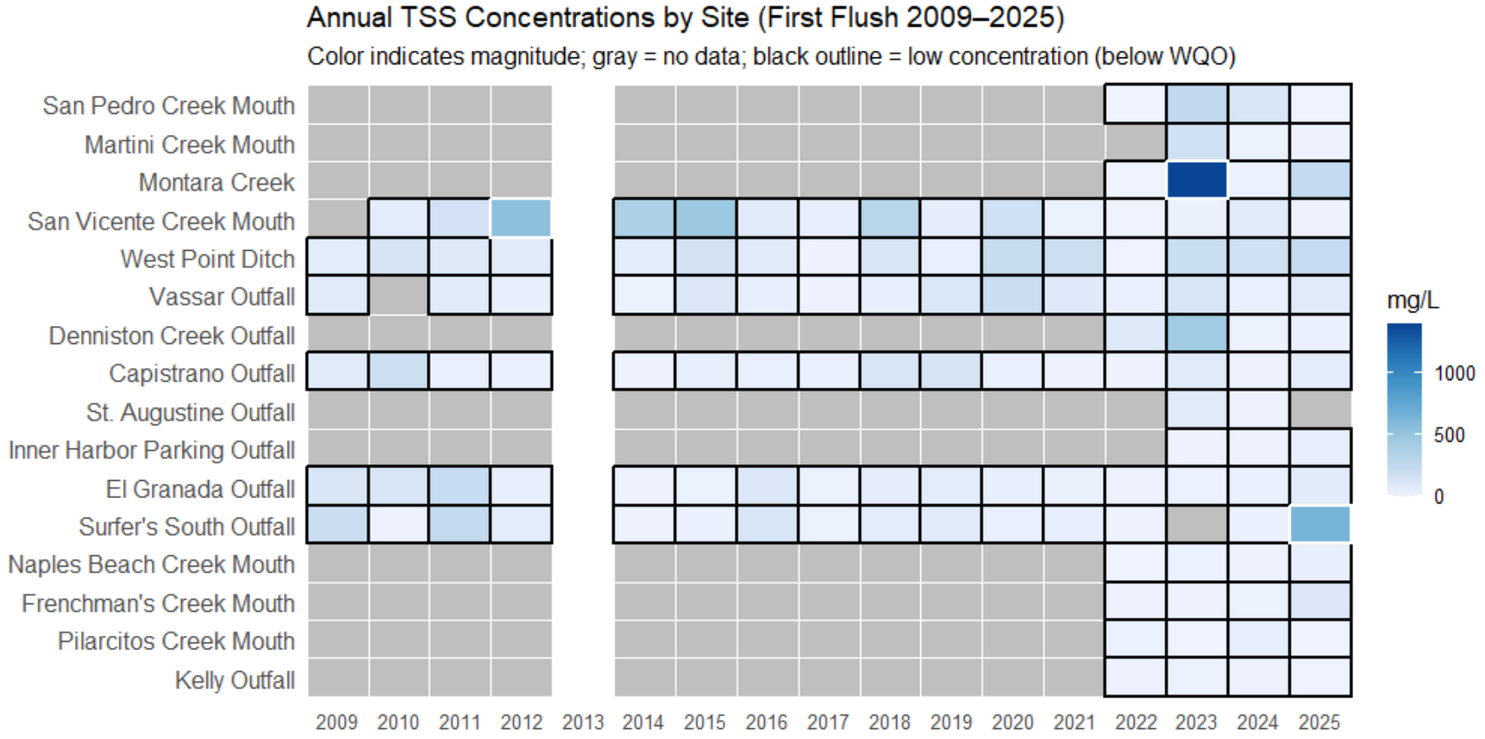




Total Suspended Solids (TSS)

2025



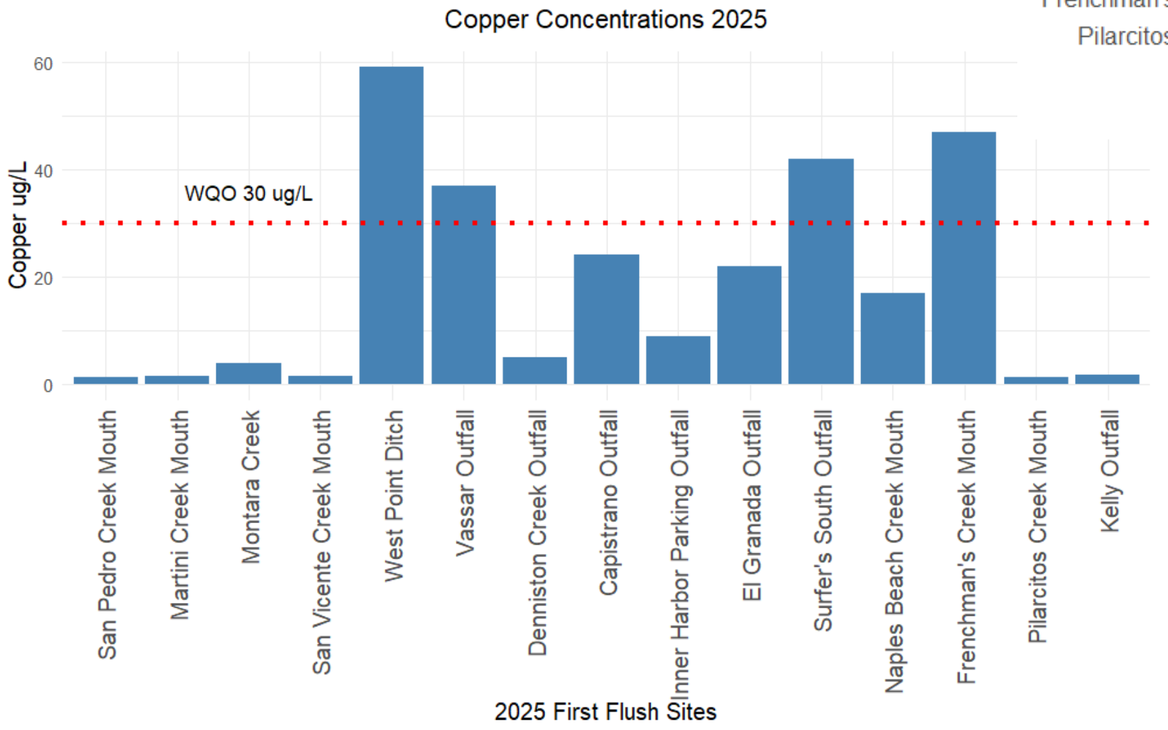


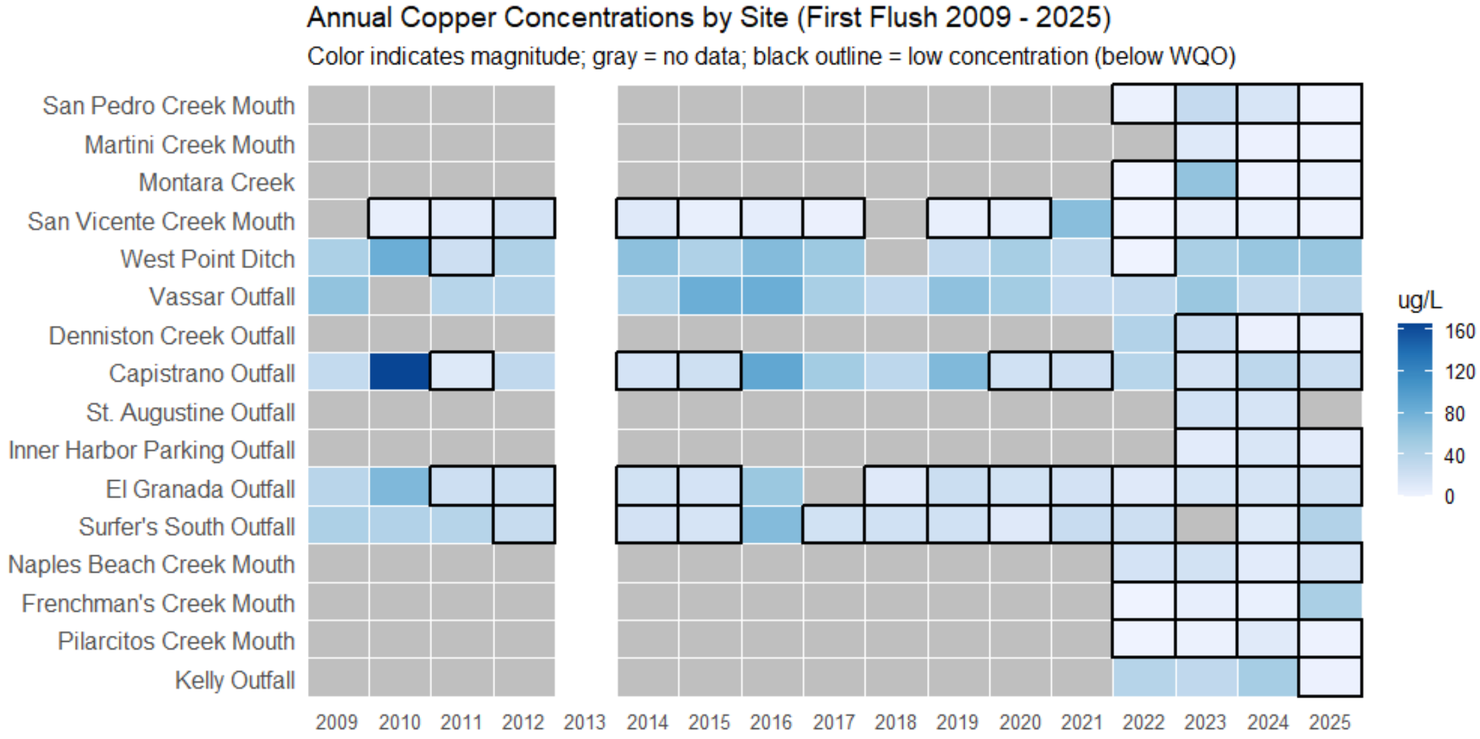
2009 – 2025

Pollutant	Potential Sources	Effects
Metals (copper, zinc, lead)	Gutters, roofs, brake pads, industrial waste, paint, fire	Human health impacts, reduced reproduction of marine mammals

Metals - Copper

2025

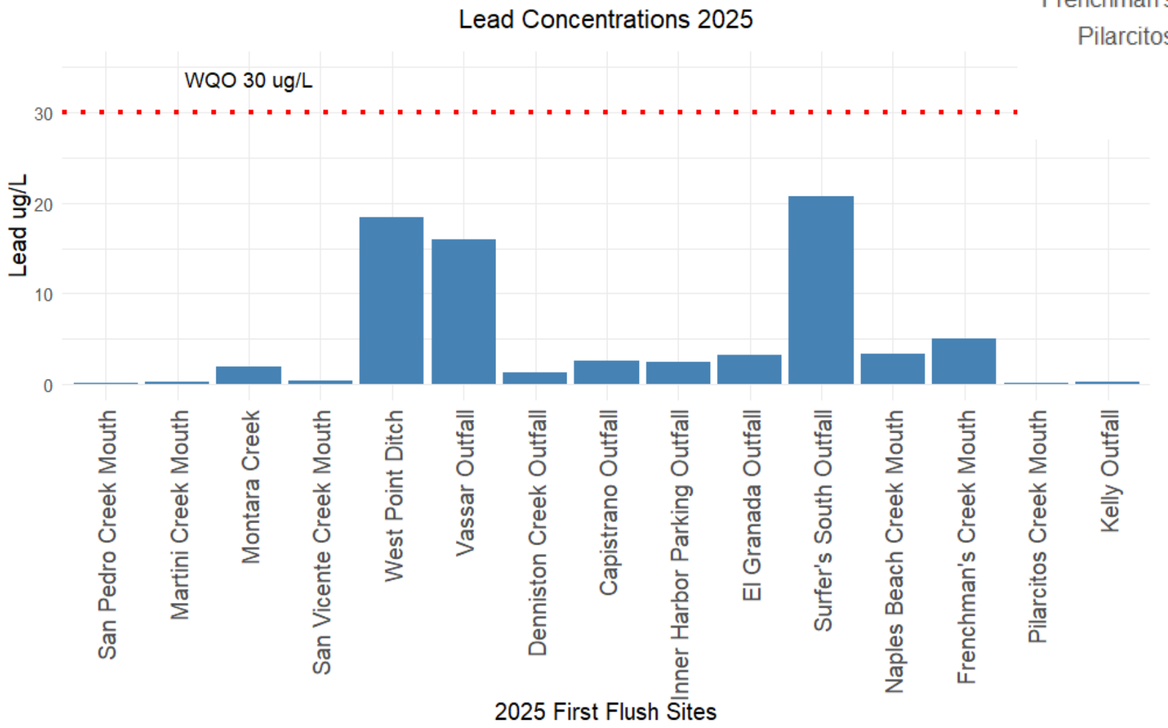


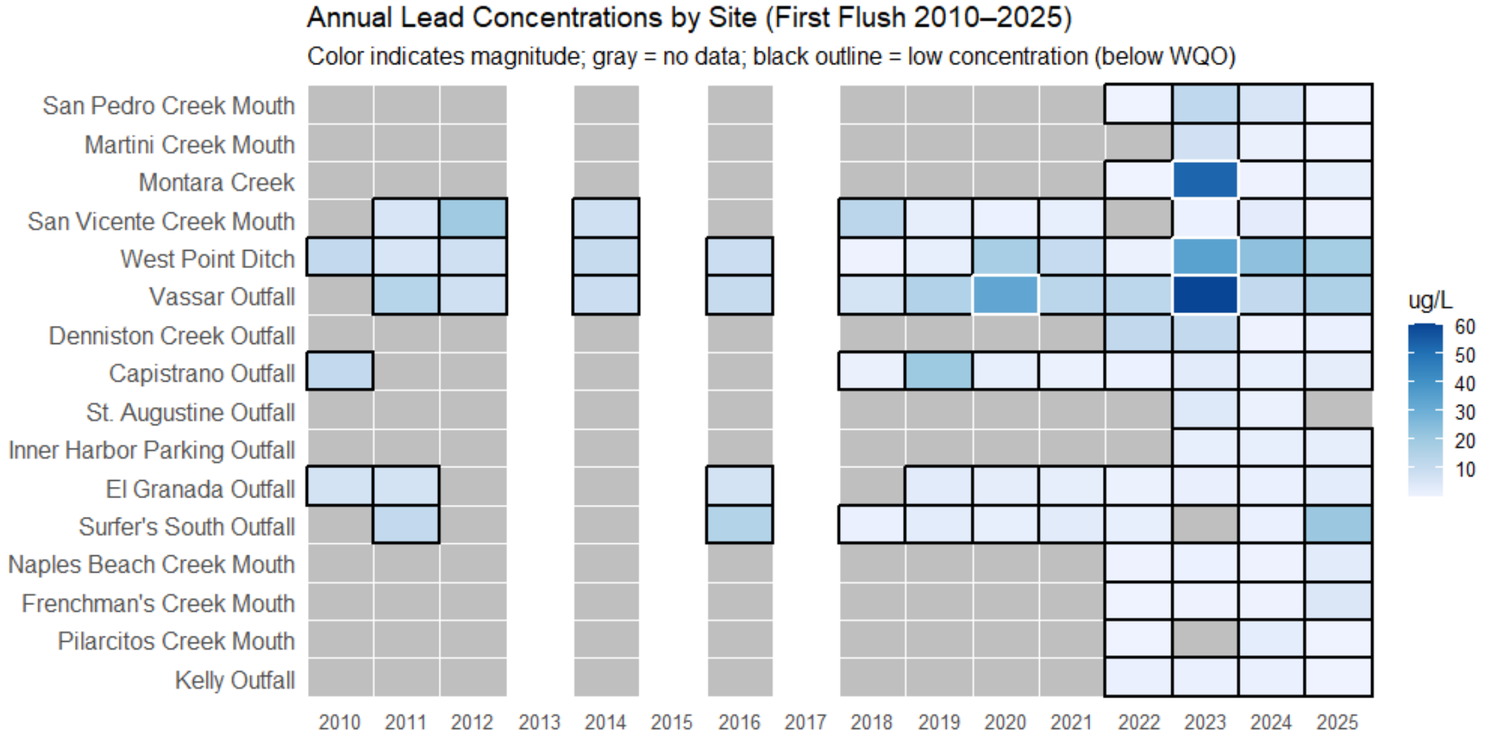


2009 – 2025

Metals - Lead

2025

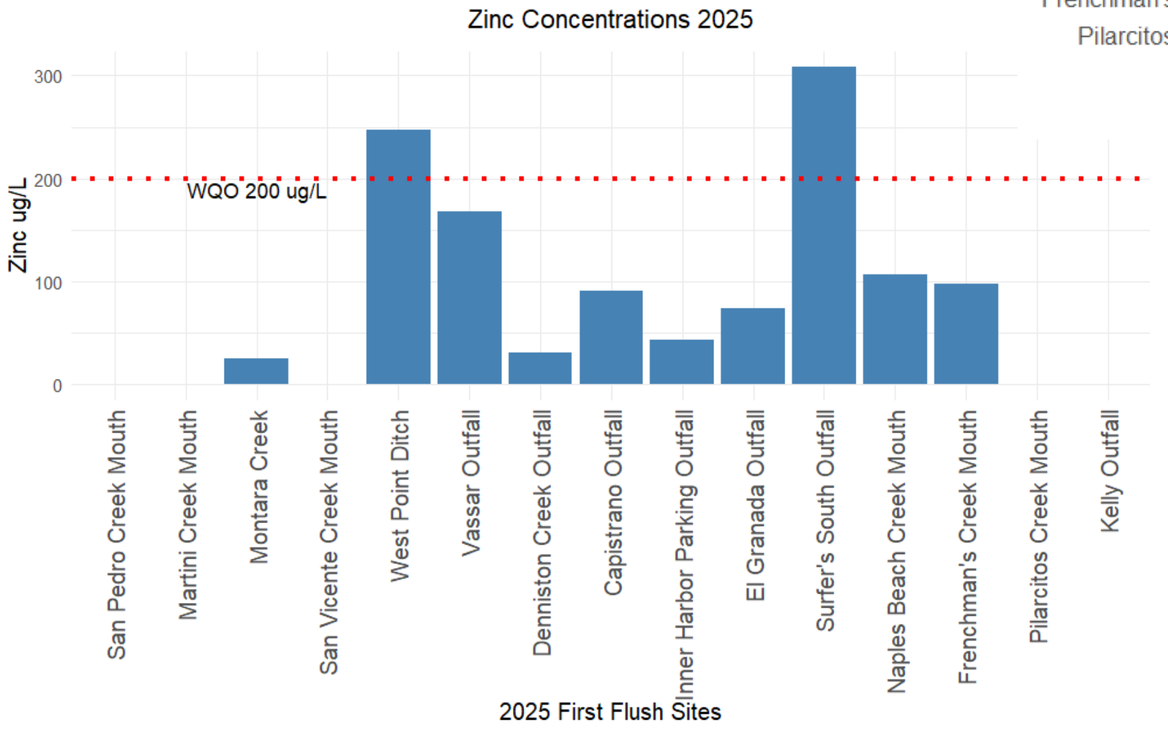


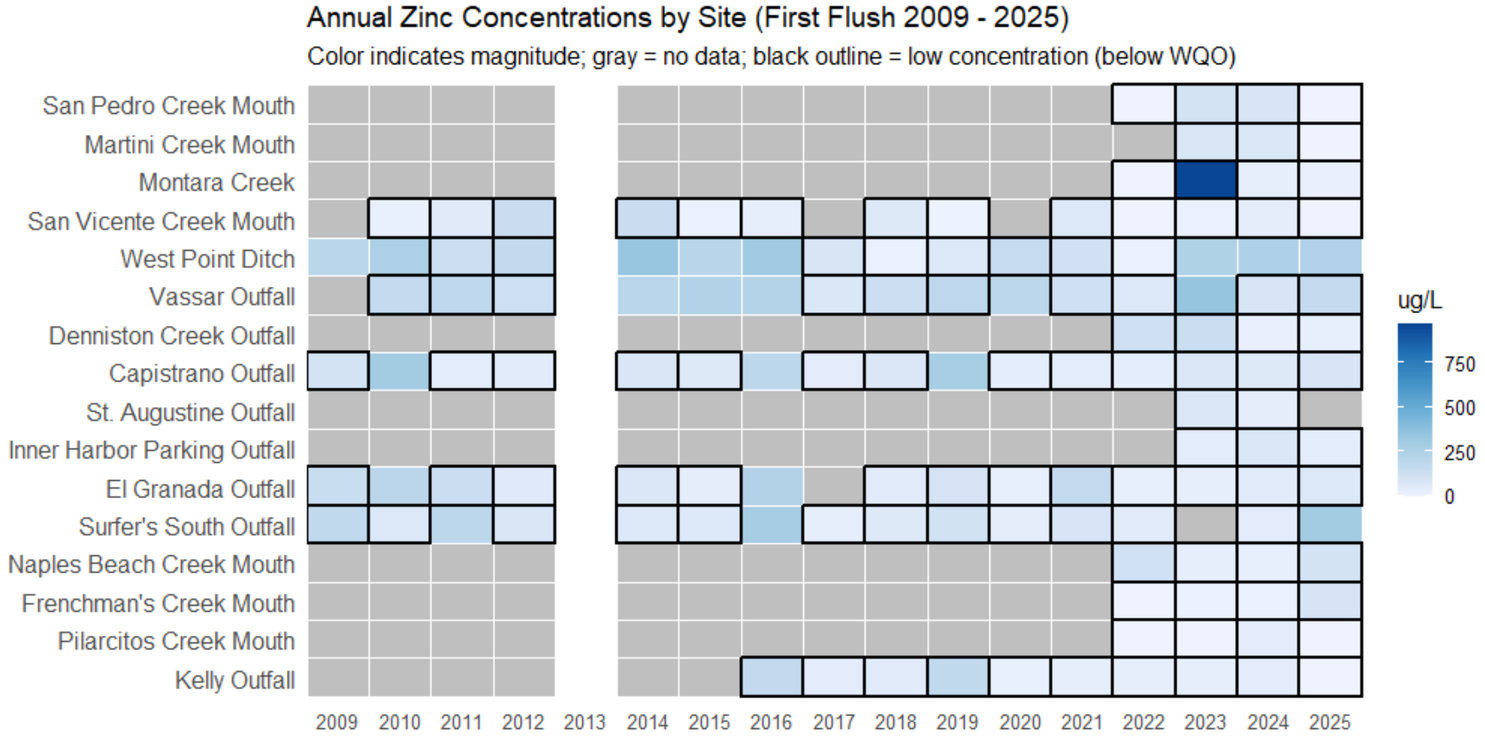


2010 – 2025

Metals - Zinc

2025

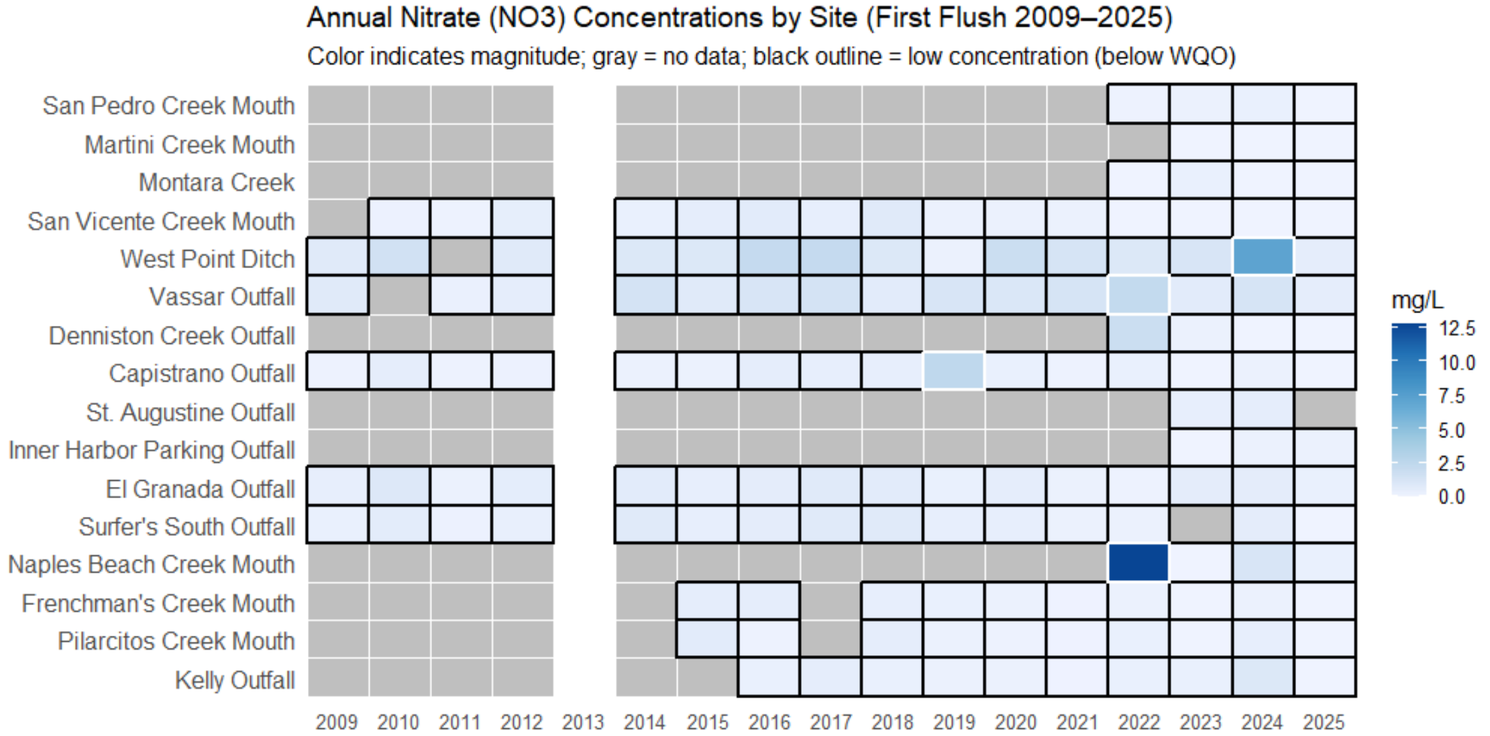




2009 – 2025

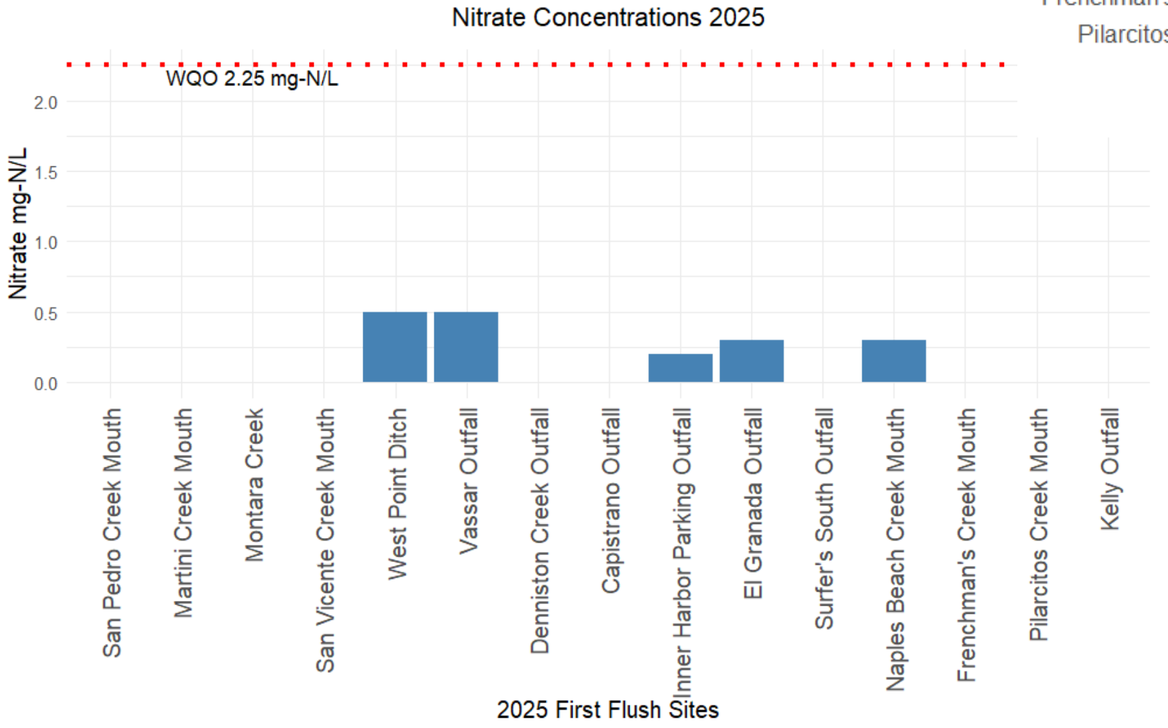
Pollutant	Potential Sources	Effects
Nutrients (nitrate and orthophosphate)	Fertilizers, pesticides, detergents	Algae blooms, Fish die-offs

Nutrients - Nitrate

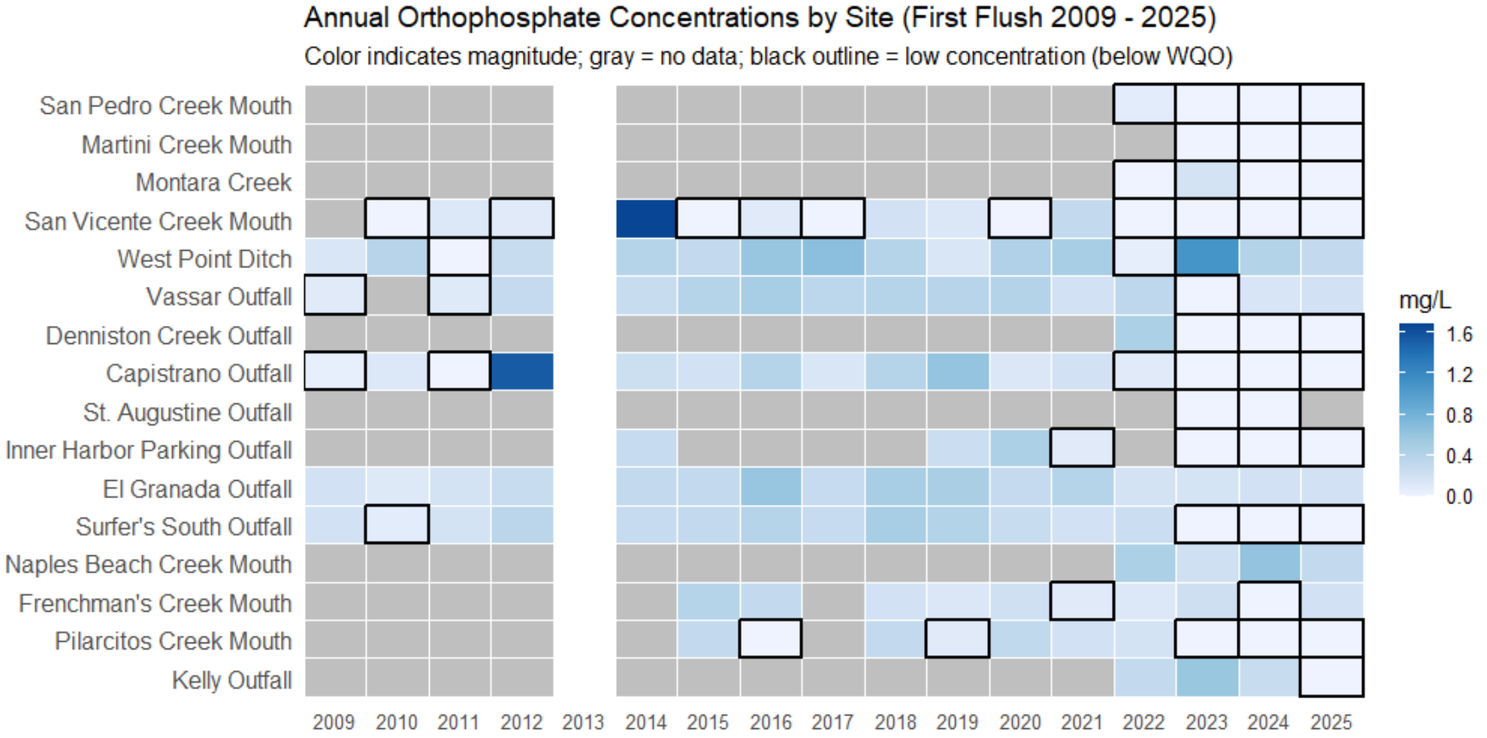


2009 – 2025

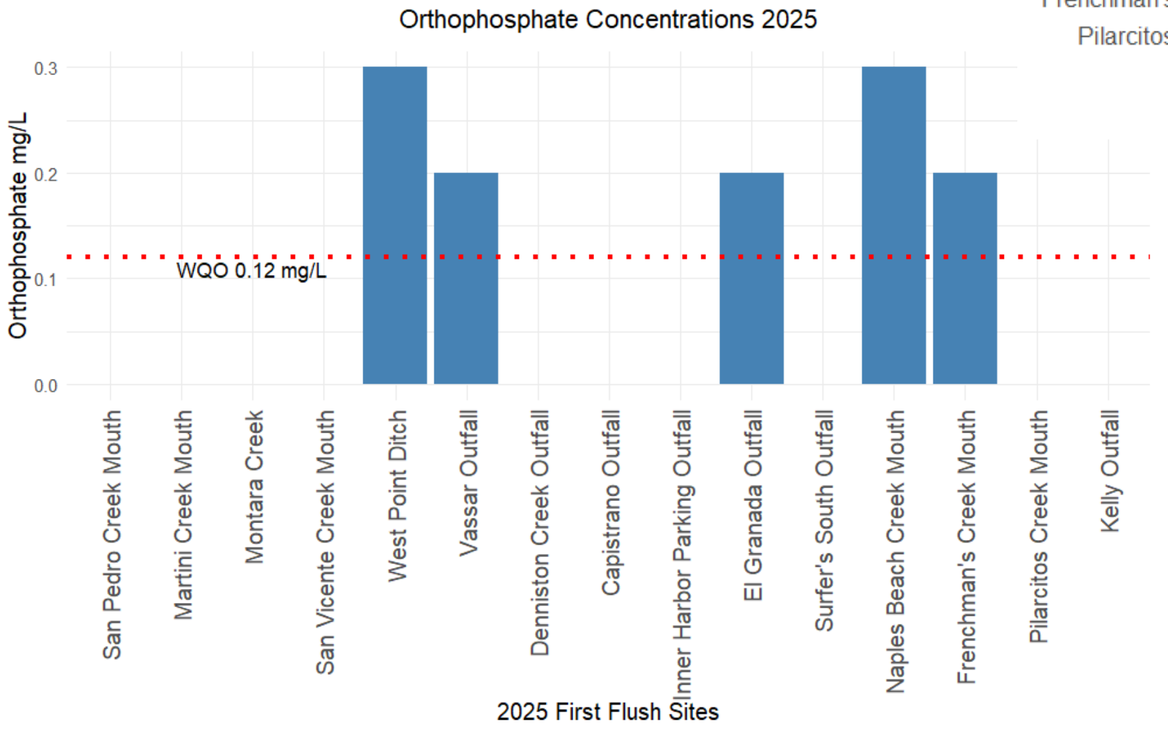
2025



Nutrients - Orthophosphate



2025



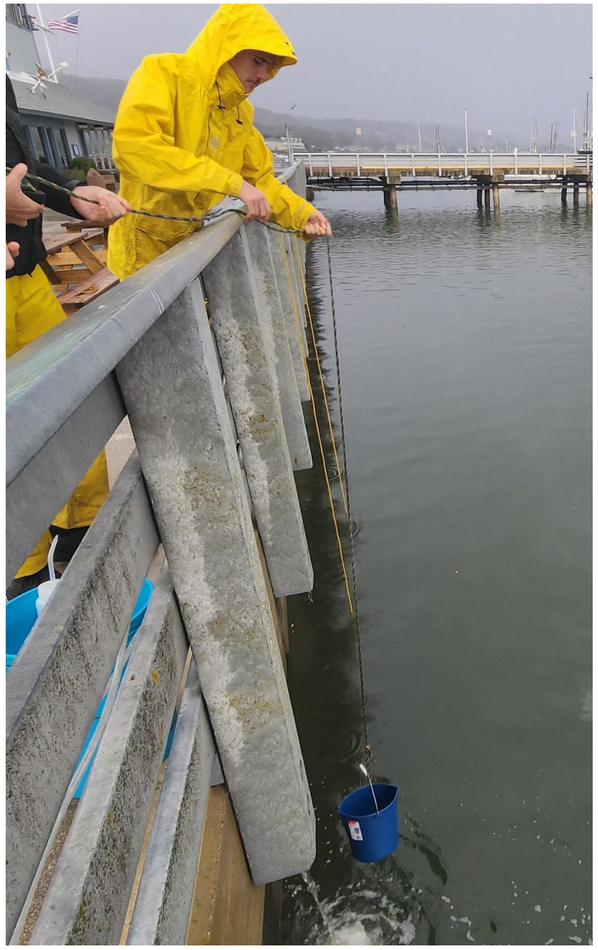
2009 – 2025

Findings

- FIB: Elevated at all but three sites
- TSS: Elevated at Surfer’s South outfall. Unrelated to sand replenishment project
- Copper: Mostly good, some sites consistently elevated
- Zinc: Mostly good, one site consistently elevated
- Lead: Rare isolated spikes. None in 2025
- Nitrate: Rare isolated spikes. None in 2025
- Orthophosphate: Five sites elevated in 2025

- West Point Ditch consistently elevated for several analytes

We Love Community Science!



Want to join the fun?

First Flush 2026

Oct – Dec, date TBD

Email: FirstFlush@SanMateoRCD.org

Snapshot Day

May 2, 2026

Thank you!
Questions?

Clifton Herrmann

Water Quality Specialist

clifton@sanmateoRCD.org

For more information:

http://www.sanmateoRCD.org/

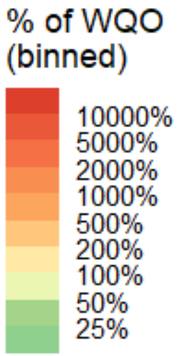
www.facebook/sanmateoRCD

www.instagram.com/sanmateoRCD

Results Summary: First Flush 2025

Fill color is binned % of WQO; labels show exact % of WQO

	E.coli	Enterococci	Copper	Lead	Zinc	Nitrate	Orthophosphate	TSS
San Pedro Creek Mouth	538%	671%	4.3%	0.3%	0%	0%	0%	0%
Martini Creek Mouth	37.8%	544%	5.3%	0.7%	0%	0%	0%	2.4%
Montara Creek	90%	274%	13.3%	6.3%	12.5%	0%	0%	48.8%
San Vicente Creek Mouth	255%	2145%	5.3%	1.3%	0%	0%	0%	2.2%
West Point Ditch	2878%	22k	197%	61.3%	124%	22.2%	250%	46.8%
Vassar Outfall	1078%	13k	123%	53.3%	84%	22.2%	167%	17.2%
Denniston Creek Outfall	1711%	5267%	16.7%	4.3%	15.5%	0%	0%	5.4%
Capistrano Outfall	909%	13k	80%	8.7%	45.5%	0%	0%	12.4%
St. Augustine Outfall*								
Inner Harbor Parking Outfall	1360%	4702%	30%	8%	21.5%	8.9%	0%	10%
El Granada Outfall	1811%	22k	73.3%	10.7%	37%	13.3%	167%	14.8%
Surfer's South Outfall	7561%	22k	140%	69.3%	154%	0%	0%	130%
Naples Beach Creek Mouth	1210%	18k	56.7%	11%	53.5%	13.3%	250%	8.8%
Frenchman's Creek Mouth	7561%	22k	157%	16.7%	49%	0%	167%	23.2%
Pilarcitos Creek Mouth	158%	1231%	4.7%	0.3%	0%	0%	0%	0%
Kelly Outfall	65.9%	357%	6%	0.7%	0%	0%	0%	0.8%
Tunitas Creek	268%	3956%	26.7%	3.3%	16.5%	0%	0%	7.2%



When is First Flush?

2000 – October 10, 5:00 am
2001 – October 30, 4:00 am
2002 – November 7, 5:30 pm
2003 – October 31, 7:00 am
2004 – October 16, 11:30 pm
2005 – November 8, 4:30 am
2006 – November 3, 12:00 pm
2007 – September 22, 4:00 pm
2008 – November 1, 8:00 pm
2009 – October 13, 6:30 am
2010 – October 17, 12:30 pm
2011 – October 5, 2:00 am
2012 – October 22, 10:30 am
2013 – October 28, 9:00 am
2014 – October 25, 8:30 am
2015 – November 2, 7:00 am
2016 – October 14, 6:30 am
2017 – October 20, 2:00 am
2018 – November 21, 9:00 am
2019 – November 19, 5:50 pm
2020 – November 17, 1:00 pm
2021 – October 20, 7:30 pm
2022 – September 21, 9:25 am
2023 – November 15, 5:30 pm
2024 – November 11, 11:00 am
2025 – October 13, 12:00 pm